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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,697	04/05/2004	Richard Scott Bourgeois	126533-1	9731

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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03/17/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ldocket@crd.ge.com
rosssr@crd.ge.com
parkskl@crd.ge.com

Office Action Summary	Application No. 10/816,697	Applicant(s) BOURGEOIS ET AL.	
	Examiner Tony Chuo	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-26 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-26 and 30-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 19-26 and 30-35 are currently pending. Claims 1-18 and 27-29 have been cancelled. The amended claims do overcome the previously stated 102 and 103 rejections. However, upon further consideration, claims 19-26 and 30-35 are rejected under the following new 102 and 103 rejections. This action is made FINAL as necessitated by the amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 19-23, 25, 26, and 30-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Sasaki et al (US 5378247).

Regarding claim 19 and 34, the Sasaki reference discloses a fuel cell stack comprising: a first fuel cell assembly “1” & “21” and a second fuel cell assembly “1” & “21” electrically coupled together such that sealed manifolds extend between the first and second fuel cell assemblies, each first and second fuel cell assembly comprising: a hollow manifold comprising a top wall “22” and a bottom wall “23” & “27”, wherein each of the top and bottom walls include a sealed fuel passage for allowing fuel to enter and

Art Unit: 1795

exit the hollow manifold; and a fuel cell “1” comprising an anode “3”, a cathode “2”, and an electrolyte “4” disposed there between, wherein the fuel cell “1” is disposed on the bottom wall “23” & “27” between the at least one manifold, wherein the bottom wall “23” & “27” of the at least one hollow manifold extending between the fuel cell and the sealed fuel passage includes thin plates “27” that are rich with flexibility to accommodate strain therebetween (See Figures 1 and 3, column 5 line 40 to column 6 lines 9-16, and column 7, lines 3-11).

Examiner’s note: The Sasaki reference discloses gas inlet manifold and gas outlet manifold (not shown in Figure 1), located left and right of the fuel cell, are construed as being sealed fuel passages (See Figures 1 and 3 and column 7, lines 3-11). Therefore, the thin plates “27” are located adjacent to the fuel cell and the sealed passage.

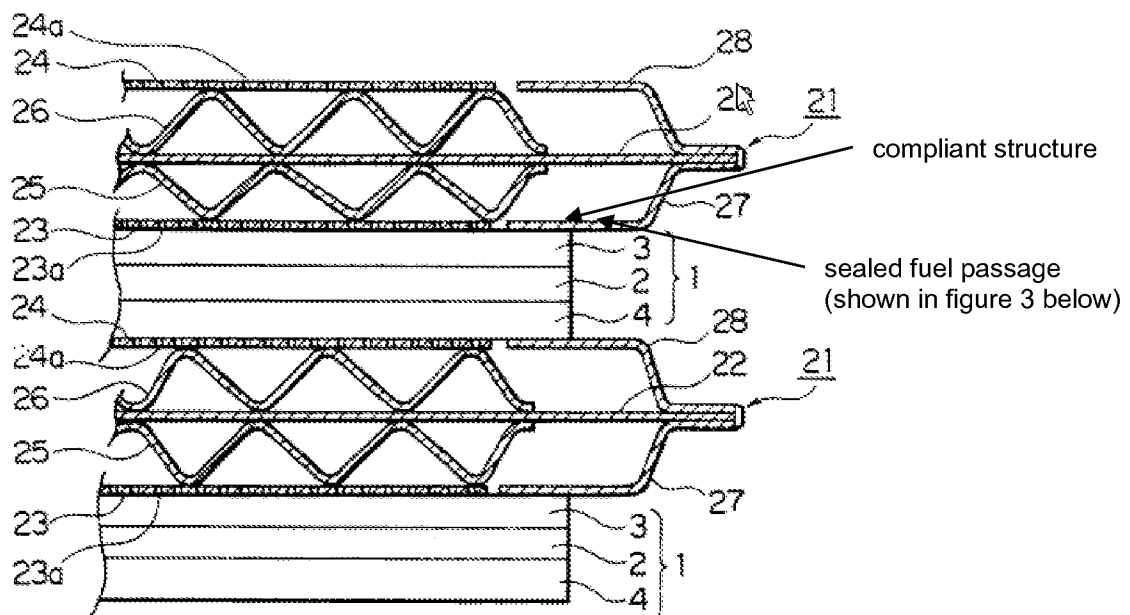
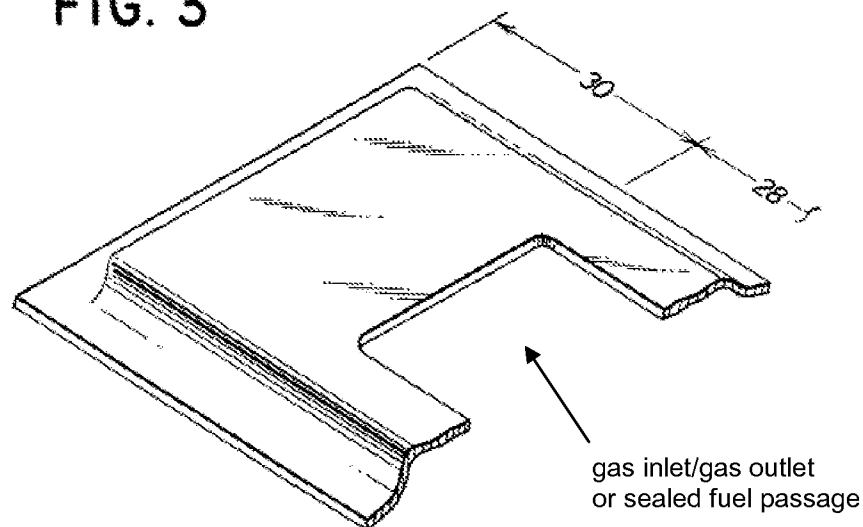
FIG. 1

FIG. 3



Regarding claim 20, it also discloses a cathode flow channel coupled to the hollow manifold of the first fuel cell assembly and the second fuel cell assembly that is configured for directing an oxidant between the first fuel cell assembly and the second fuel cell assembly (See Figure 1).

Regarding claim 21, it also discloses a hollow manifold that is substantially rectangular (See Figure 1).

Regarding claim 22, it also discloses a hollow manifold that further comprises an electrically conductive material "22" (See column 5, line 58).

Regarding claim 23, it also discloses a molten carbonate fuel cell (See column 1, lines 6-10).

Regarding claim 25, it also discloses thermal deformation of the fuel cell components (See column 6, line 59).

Regarding claims 26, 30, and 31, it also discloses separator components that are thin plates that are welded which implies that the separator components are metal (See column 12, lines 42-45). In addition, it well known in the art that molten carbonate fuel cells comprise ceramic materials and materials of different thermal coefficients of expansion. Therefore, the thermal coefficients of expansion of the fuel cell and the top and bottom walls are different.

Regarding claims 32 and 33, it also disclose the top wall "22" and bottom wall "23" of the hollow manifold that act as an anode interconnect (See Figure 1).

Regarding claim 35, it also discloses portions of each of the top wall and the bottom wall immediately adjacent to the fuel cell and the sealed passages are configured to have separate corrugated structures to accommodate a difference in strain between the fuel cell, the top wall, the bottom wall, and the sealed passages (See Figure 21).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnett et al in view of Sasaki et al (US 5378247).

The Barnett reference discloses a solid oxide fuel cell stack comprising a plurality of unit fuel cells "13" and a plurality of interconnects "12" that form a plurality of fuel cell assemblies that are electrically connected together, wherein each fuel cell assembly comprises: a hollow manifold comprising an upper sheet "16" and lower sheet "18" wherein each of the upper and lower sheets include a sealed fuel passage "26" for allowing fuel to enter and exit the hollow manifold; and a fuel cell comprising an anode "36", a cathode "38", and an electrolyte "37" disposed there between with the fuel cell disposed on the lower sheet "18" between the manifolds (See column 2, lines 21-55 and Figures 3 and 4).

However, Barnett et al does not expressly teach one of the top wall and bottom walls of the at least one hollow manifold extending between the fuel cell and the sealed fuel passage that includes a compliant structure to accommodate a strain therebetween. The Sasaki reference teaches the concept of using thin plates with high flexibility adjacent to a high temperature fuel cell and a sealed passage (See column 6, lines 13-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Barnett interconnect to include one of the top wall and bottom walls of the at least one hollow manifold extending between the fuel cell and the sealed fuel passage that includes a compliant structure to accommodate a strain therebetween in order to improve the gas sealing property of the interconnect during the temperature rise involved in the operation of the fuel cell.

Response to Arguments

6. Applicant's arguments with respect to claims 19-26 and 30-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571)272-0717. The examiner can normally be reached on M-F, 7:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for

Art Unit: 1795

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795